

H 3544 PCT/US  
Serial No. 09/857,638

Remarks

Claims 12-25 are pending.

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**Claim Objections**

Claim 20 is objected to because of an apparent ambiguity in the meaning of the term "coordinatively". Applicants respectfully submit that this term defines a type of chemical bonding that is "neither covalent nor electrostatic but may be considered intermediate between the two types." This is a quotation from the Condensed Chemical Dictionary, 13<sup>th</sup> Edition, and is found on page 296 under the definition for **coordination compound**. The definition of a **covalent bond** is a "Sharing of electrons by a pair of atoms." Ibid, at p. 307. This may be contrasted with the definition for a **coordinate bond**, which is described as being a "covalent bond consisting of a pair of electrons donated by only one of the two atoms it joins". Even though the term "covalent" is used within the definition of a coordinate bond, it should be readily apparent from the full definitions of all three terms that a coordinate bond is not the same as a covalent bond. It is, as defined above, a type of bond that is between covalent and electrostatic bonds.

**Rejections Under 35 USC 112**

Claim 21 is rejected under 35 USC 112, second paragraph, as being indefinite with regard to the term "further additives". Applicants kindly direct the Examiner's attention to page 12, lines 6 et seq., of the specification where the components that

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**H 3544 PCT/US**  
**Serial No. 09/857,638**

make up the "further additives" are set forth. These additives are combined with the adhesive. Silanes, however, may be affixed to the surface of the nanoparticles themselves as an optional treatment. It is respectfully submitted that, when read in view of the specification, the term "further additives" is clear and unambiguous. The withdrawal of this rejection is therefore respectfully requested.

### **Rejections Under 35 USC 102**

Claims 12-14, and 21-22 are rejected under 35 USC 102(b) as being anticipated by Komagata et al. (US 5,714,238). This reference discloses a conductive adhesive formulation that consists of conductive particles having a surface of either nickel or nickel-boron alloy, the surface being subjected to a treatment consisting of a mixture of a polyoxyalkylene phosphate compound and a polyoxyalkylenealkyl or polyoxyalkylenealkenyl amine or derivative thereof. Also required are an epoxy compound and a phenolic resin. The foregoing amendment to claims 12 and 14 has deleted "ferromagnetic" particles and metallic particles, including their alloys. The paramagnetic particles and superparamagnetic particles, and their oxides, as now claimed, are not disclosed in Komagata et al. Support for this amendment may be found at page 3, line 29 et seq. Accordingly, Applicants respectfully request the withdrawal of this rejection.

Claims 12-14, and 16-22 are rejected under 35 USC 102(e) as being anticipated by Czaplicki et al. (US 5,985,435). Disclosed herein is an adhesive composition comprising particles that have permanent magnetic properties upon exposure to an external DC field, such as a capacitive discharge magnetizer. However, as now amended, the instant claims do not include particles having permanent magnetic properties. The claims are now limited to only paramagnetic or

**H 3544 PCT/US**  
**Serial No. 09/857,638**

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superparamagnetic particles which lose their magnetic properties when an external magnetic field is removed. These particles do not possess a permanent magnetic field. Applicants therefore respectfully request the withdrawal of this rejection.

### Rejections Under 35 USC 103

Claims 12, 14 and 15 are rejected under 35 USC 103(a) as being unpatentable over Czaplicki et al. in view of Thakur et al. (US 5,240,626). The '626 patent discloses a ferrofluid that contains a colloidal dispersion of magnetite particles. The magnetite particles are coated with a carboxy-functional polymer as an anti-agglomerating agent. The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of the instant invention to have used the magnetic particles of Thakur et al. in the composition of Czaplicki et al. It is respectfully submitted that this rejection may now be withdrawn in view of the amendment to the instant claims which has deleted "ferromagnetic" particles. There is no suggestion from the combined teachings of Czaplicki et al. and Thakur et al. to produce an adhesive having paramagnetic or superparamagnetic particles. Paramagnetic and superparamagnetic particles are not magnetizable to the extent that they maintain their magnetic properties after the external magnetic field is removed. The combination of Czaplicki et al. and Thakur et al. requires the incorporation into an adhesive formulation of particles that maintain their magnetic properties whether or not in the presence of an external magnetic field. Applicants amended claims are devoid of particles exhibiting this characteristic. Accordingly, the withdrawal of this rejection is respectfully requested.

Claims 13 and 23-24 are rejected under 35 USC 103(a) as being unpatentable over Czaplicki et al. in view of Kelly (US 4,176,054). Kelly discloses a hot melt

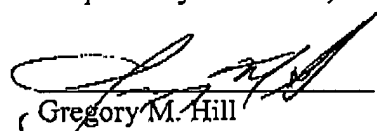
**H 3544 PCT/US**  
**Serial No. 09/857,638**

adhesive formulation comprising a binder and magnetic particles, such as magnetite. What is not disclosed are paramagnetic or superparamagnetic particles having a very small size distribution. The combination of these two references does not suggest the use of very small nanoparticles having paramagnetic or superparamagnetic properties for use in adhesive formulations. The withdrawal of this rejection is therefore cordially requested.

Claim 16 is rejected under 35 USC 103(a) as being unpatentable over Czaplicki et al. in view of Sawai et al. (US 4,254,201). The secondary reference discloses a pressure sensitive adhesive composition that contains polymer and magnetic particles. Czaplicki et al. employ iron containing particles, such as ferrite, in their adhesive formulation. However, there is no inference from the combination of these two references that would suggest the use of very small paramagnetic or superparamagnetic particles in adhesive formulations. Accordingly, the withdrawal of this rejection is cordially requested.

In view of the foregoing amendment, Applicants believe that the claims, as now amended, present patentable subject matter. This timely issuance of a notice of allowance is earnestly solicited.

Respectfully Submitted,

  
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